Notes on Histeridae.

By Charles Schaeffer, Brooklyn, N. Y.

Hololepta pervalida Blaisd.

This is a valid species and distinguishable from all the North American as well as the Mexican species of the subgenus *Lioderma,* as far as known to me, by the possession of a transverse marginal line at base of elytra. This impressed line is a continuation of the two striæ along the basal margin and generally extends to the scutellum. The form is narrower and more parallel than *yucateca;* the apical fovea of the thorax in *yucateca* is very near the apical angles, while the fovea in *pervalida* is separated from the apical angles by twice or three times the width of the side margin, the space between the fovea and the apical angle with confused, short striæ. The median ridge of the underside of the front tibiæ is smooth and not interrupted in *yucateca,* but is interrupted, or rather three—or four—dentate in *pervalida.*

Mr. George Franck received a great number of specimens from Pasadena, which I take to be this species. The description is very poor, hardly anything is given to differentiate this species from *yucateca,* except that it is said to be "strongly oblong, narrower and much less depressed than *yucateca,*" which applies well to the Pasadena specimens, but also to *grandis* Mars., which Marseul himself placed as a synonym of his *yucateca.* In the description of *grandis* there is, however, no mention made of the transverse marginal stria at base of elytra, which could not have been overlooked.

Major Casey, who seems to have seen the type of *princeps* Lec., states that this is a distinct species, but gives nothing to differentiate it from *yucateca* Mars. It may be that *pervalida* is the same as *princeps,* in which case the latter name has to be used for this species.

I found *Hololepta yucateca* near Brownsville, Texas, in the decaying trunks of *Yucca treculeana; vernicis* in the decaying flower stalks of *Agave americana?* in the Huachuca Mountains, Arizona, and *cacti* in the half-decayed leaves or rather stems of *Opuntia engelmanni* near Brownsville and Hidalgo, Texas.

Hololepta vernicis Casey.

In the Huachuca Mountains, Arizona, I took a small number of specimens of a *Hololepa,* which agree in every respect with the description of this species. It is also a good species and not synonymous with *yucateca.* The specimens are always much smaller than *yucateca,* about the size of *cacti,* but more elongate; the lateral thoracic groove is narrow and deeply impressed, and scarcely becomes wider near apical angles; near the latter in the male is a deep circular fovea, which is absent in the female; the supra-orbital striæ are in all my specimens short, basal. The description of the Mexican *polita* Mars. fits the males of *vernicis* Casey very closely, in fact, there is hardly anything in the description which does not agree with my Arizona specimens, except that the subhumeral stria does not extend quite to the base in my specimens. The two will have to be united if there are not other characters present to separate them.

Hololepta (*Lioderma*) **beyeri** new species.

Male.—Form and size of *cacti* Lec., but slightly narrower, black, shining. Mandibles elongate, feebly curved at apex, suddenly dilated inside at about basal third, above the dilatation, one obtuse tooth, surface finely punctulate. Head sparsely, rather coarsely punctate with some finer punctures intermixed; anteocular tooth indistinct; supra-orbital striæ distinct. Thorax deeply emarginate at apex; sides feebly arcuate; lateral striæ deeply impressed, but not broad, continued along basal margin for a short distance; at sides, slightly below apical third a deep transverse groove, above and below this a smaller one, which two are more or less connected with each other by the marginal stria; near apical and basal angles the surface is moderately coarsely punctate, disk smooth, with an impressed median line, which does not extend to apex. Elytra as broad as the thorax at base; subhumeral groove deeply impressed, not extending to base nor apex, coarsely, sparsely punctate; first dorsal stria short, basal, deeply impressed, below this a row of more or less distinct fine punctures; second stria deeply impressed, entire, around which are a few coarse punctures at apex. Propygidium rather coarsely punctate, punctures sparser at middle and finer and denser at apex; pygidium more densely punctate not margined. Labrum obtusely carinate on each side, and rather acutely emarginate at middle. Prosternum convex, strongly compressed and carinate in front of anterior coxæ, acute at apex, broadly dilated and flat behind. Anterior and middle tibiæ quadridentate,

posterior tridentate, teeth of middle and hind tibiæ long and acute, except the basal tooth on middle tibiæ, which is small. Length, from apical margin of thorax to apex of elytral suture, 8.5 mm.

Habitat.—Santa Rosa, Lower California. 2 Cotypes U.S.N.M. #42350

I take great pleasure in dedicating this interesting species to my friend, Mr. Gustav Beyer, to whom we are indebted for this and many other additions to our fauna.

The lateral transverse grooves of thorax and the basally dilated mandibles distinguish this species from any of those known to occur within our fauna. The Mexican *dorcoides* has the thorax similarly grooved, but the mandibles have a blunt tooth at base and are serrulate inside, while in *beyeri* the mandibles are broadly dilated at base with one obtuse tooth above the dilatation, the apical part of the inner edge above the tooth is smooth, showing no sign of irregularity in any of the specimens examined.

The presence of a supra-orbital stria, which is used by Dr. Horn in his synoptic table in separating *yucateca* and *cacti* from the rest of our species is in these fairly constant, but is variable in length in *pervalida* and short, basal in *vernicis*, but also visible at base in *quadridentata* and *vicina*, while in *fossularis*, *lucida* and *populnea* not the slightest trace can be found. The three last mentioned species have above each eye an almost semi-circular, fovea-like distinct impression, the form is more depressed and the prosternum broad and flat. They belong to *Hololepta proper*, while the rest of our species belong to the subgenus *Lioderma*. These latter have instead the fovea-like impression, a slightly depressed, coarsely punctured space above each eye, from which the supra-orbital striæ start.

Th labrum in *quadridentata* is said to be carinate, which is not quite correct. The greatest part of the labrum at middle is deeply depressed, especially in front, consequently the sides being more elevated, from a certain point of view, give the appearance of being carinate on each side.

Table of the Species of **Hololepta.**

First and second elytral striae continued along basal margin forming a basal stria, which generally extends to the scutellum.

pervalida Blaisd.

Elytra without transverse marginal striae at base . . . . . 2.

1. Pygidium distinctly margined ; labrum longitudinally carinate on each side ; lateral margin of thorax generally interrupted at middle, but grooved or foveate except near apical angles in the male. **cacti** Lec.

Pygidium not margined . . . . . 3.

3. Thorax near side margin, slightly below apical third, deeply transversely grooved, above and below this a smaller, but deeply impressed fovea, the one about middle, connected with the median groove by the marginal groove ; mandibles more or less suddenly dilated at about basal fourth and with a more or less distinct tooth above the dilatation ; labrum obtusely carinate on each side ; prosternum strongly carinate in front, broadly dilated behind . . . . . **beyeri** n. sp.

Thorax near side margin below apical third not grooved, mandibles not dilated at basal fourth . . . . . 4.

4. Head on each side above each eye with a fovea-like distinct impression ; no supra-orbital striae . . . . . 10.

Head on each side above the eyes feebly depressed, coarsely punctate and with a more or less distinct supra-orbital stria, which is in some species greatly abbreviated and visible at base only . 5.

5. Labrum longitudinally carinate on each side ; outer carina of underside of middle and hind tibiae denticulate . . . . . 8.

Labrum not carinate, outer carina on underside of middle and hind tibiae not denticulate . . . . . 6.

6. Median carina on underside of front tibiae without, or with one, tooth like elevation at apical fourth . . . . . 7.

Median carina of underside of front tibiae with several tooth like elevations at apical half 9

7. Thorax at apical margin, on each side of the emargination, with a short impressed transverse line ; sides of thorax near marginal groove not punctate ; lateral groove of thorax relatively broad; strongly widening towards apex and terminating here in a more or less distinct fovea-like impression in both sexes. **yucateca** Mars.

Apical margin of thorax without short, impressed line on each side of emargination ; sides of thorax near lateral margin, moderately coarsely punctate from base to apex ; lateral groove of thorax narrow, deeply impressed and of nearly equal width throughout, terminating in a very deep, rounded fovea in the male, the fovea absent in the female ; supra-orbital stria short, basal . . . . . **vernicis** Casey

8. Medium carina on underside of front tibiae feebly dentate near apical fourth ; supra-orbital stria short, basal ; head without frontal stria ; elytra with inner stria entire, outer short, basal ; supra-orbital stria short, basal . . . . . **quadridentata** Fab.

9. Head in front with two arcuate impressions, which are sometimes connected; thorax punctate at sides; elytra with inner stria entire, outer short, basal; supra-orbital stria short, basal. **vicina** Lec.

10. Elytra with outer stria entire, inner short basal; prosternum feebly convex, broadly arcuate in front . . . . . **lucida** Lec.
Elytra without entire striae; prosternum flat, broad and truncate at apex . . . . . 11.

11. The two striæ on each elytron, short, basal, the inner without apical appendage . . . . . **fossularis** Say.
The inner elytral stria with apical appendage, the outer short, basal. **populnea** Lec.

Hololepta neglecta Blaisd., described in Zoe, Vol III, p. 338, is unknown to me and not included in the above table, as nothing tangible could be found in the poor description to differentiate this from the allied species.

Omalodes grossus Mars. (*texanus* Mars, *lubricans* Casey.)

The principal difference between *grossus* and *lubricans* consists in the punctuation of the pygidium and propygidium, which are in *grossus* coarsely punctuate at sides only, while in *lubricans* the entire pygidium is coarsely punctuate, except in anterior third and the punctured space on each side of the propygidium connected at apex by some very fine punctures. The five specimens before me show all grades of variation in the punctuation of the two pygidia from *grossus* (Huachua Mountains, Arizona) to *lubricans* (Sta. Rita and Huachuca Mountains, Arizona).

Omalodes texanus Mars.

Is principally separated from *grossus* by having the two punctured areas at sides of the two pygidia connected at apex and the hind tibiæ tridendate. The first character, as shown above, is not constant, and an examination of the ten hind tibiæ of the five specimens before me reveals the interesting fact that the number of teeth is not alone variable, but that even in the same specimen one of the hind tibia may be tridentate and the other quadridentate, also that the distance between the first and second and second and third tooth varies greatly on the two tibiæ of the same specimen In my opinion there is very little doubt that *texanus* also has

to be placed as synonym of *grossus*. The more elongate form mentioned by Marseul as another character distinguishing the species from *grossus* seems to me purely sexual, the figures given by him of the two species do not show such great difference in form as one might expect from his description.

I found this species in the Huachuca Mountains, Arizona, in the decaying flower stalks of *Agave americana*.

Notes on Papilio ajax.

By R. R. Rowley, Louisiana, Mo.

The chrysalids of *Papilio ajax*, from larvæ fed in confinement in the summer of 1905, and kept over winter in a dry box in a closet opening into a warm room, began giving imagoes April 12th, and between that date and May 2d, seventy-nine butterflies emerged, three or four only of the original number of pupæ dying in the pupal skins. But few of the of the imagoes were deformed, and these cases were largely due to pricking the wings before their unfolding. The greatest number of "flies" emerging at one time, twenty-two, was April 22d, but from lack of proper attention in removing the pupæ about to "hatch" to different boxes, so that there would be few of the imagoes together, not many of this number were worth keeping, being badly battered and torn, although the cages were in a dark closet.

It is my custom in setting bred specimens to give the imago as long a lease on life as possible before putting it in the cyanide jar, else the wings may be too limp and the blood collect in blisters and spoil the specimen.

After the wings of a butterfly are fully expanded it is four hours or more before the insect has strength enough to fly well, and it is best to allow your specimen so much time before you kill it.

In the case of moths, after emergence, it is well to keep the cage in the light (not direct sunlight) and, as they usually "hatch" in early morning, allow them all day to fully develop, transferring them to the cyanide jar late in the afternoon, not evening, as that is their time of flight.

As stated in the article on *ajax* in the May, 1906, num-